

Telecommunications Connectivity

Fixed Network and Mobile Coverage Assessment

Chancery House
 St Nicholas Way
 Sutton
 SM1 1JB



FIXED NETWORK SERVICES

BUILDING ENTRIES	
DUCT ENTRIES	YES – (3No.)
LOCATION	BASEMENT PLANT ROOMS
SECURITY	EXCELLENT
OWNERSHIP	BT / VIRGIN MEDIA
DIVERSITY AVAILABLE	YES - BY CARRIER / LOCATION
STATUS (CAPACITY)	SPARE CAPACITY AVAILABLE

CARRIERS	
BT OPENREACH	IN BUILDING
VIRGIN MEDIA	IN BUILDING

SERVICES	
BT OPENREACH	COPPER + FIBRE SERVICES – BASEMENT FRAME ROOM AND RISERS ADSL BROADBAND AT 10-19Mbps - EXCHANGE LINE ONLY
VIRGIN MEDIA	FIBRE SERVICES IN GAS METER ROOM AND RISER

ADDITIONAL SERVICES	
LANDLORD	POTENTIAL MANAGED SERVICES VIA ADEPT – TO BE CONFIRMED
OTHERS	N/A

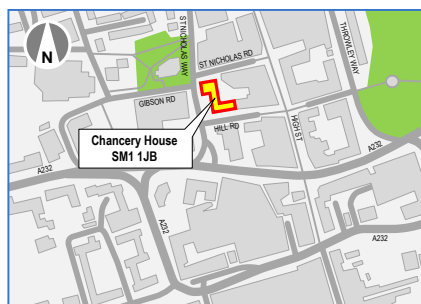
BUILDING DISTRIBUTION	
RESILIENCE	SECURE INTAKE LOCATION – BASEMENT PLANT ROOM / GAS METER ROOM
RISERS	SECURE RISERS AVAILABLE – RESTRICTED ACCESS
SECURITY	GOOD SECURITY THROUGHOUT, INTAKE POSITION IN RESTRICTED ACCESS AREA.
TENANT FLOOR SPACE	EXCELLENT CONNECTIVITY/EASE OF INSTALL FROM RISERS VIA RAISED FLOORS / CEILINGS

MOBILE NETWORK SERVICES

OPERATOR SERVICES	THREE, VODAFONE, O2, EE - 2G, 3G, 4G (THREE - 3G/4G ONLY)
COVERAGE SUMMARY	GOOD/VARIABLE COVERAGE ACROSS ALL OPERATORS, POTENTIAL DEGRADATION OF SERVICES ACROSS BASEMENT AND IN LIFTS
BUILDING SOLUTIONS	NO COVERAGE SOLUTIONS IN PLACE AT THIS TIME



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St Nicholas Way
Sutton SM1 1JB



Fixed Network Services

BT Services	Excellent
Other Carriers	Excellent
Building Distribution	Excellent

Mobile Network Services

Operator	Voice	Data
Three	Good	Good
Vodafone	Good	Good
O2	Good	Good
EE	Good	Good

Fixed Network Connectivity - Carrier Study

Chancery House, St Nicholas Way, Sutton SM1 1JB

Apr 2018

STRUCTURE

Chancery House is an established office building located in the centre of Sutton. The building extends to ground and eight upper floors plus basement car park and plant rooms. The building currently affords approximately 8,979 sq ft (834 sqm) of available high quality accommodation with raised access floors and suspended ceilings. Chancery House is of typical frame construction with a mixture of stone clad and glazed facades to all elevations, and sits within an environment of other commercial properties of similar height with good separation between adjacent buildings.

TOPOGRAPHY



BT SUMMARY

Chancery House is located approximately 550m from the BT Sutton Cheam Exchange, which is situated to the south of the building. This exchange provides excellent services including ADSL, ADSL+, SDSL, 21CN WBC, FTTC and FTTP (to some areas) plus the availability of LLU services from Sky, Talk Talk and Vodafone all over BT infrastructure. Based on the existing standard copper services, the exchange can offer ADSL broadband speeds of around 10-19Mbps at this time. This exchange has been enabled to provide BT Infinity services over FTTC technology with speeds of up to 80Mbps download and 20Mbps upload. However, this building is noted as 'Exchange Only' and is not therefore connected to the local street cabinet and BT are currently 'exploring options' in respect of FTTC technology delivery but provides no timescales for deployment at this time (Data via the BT website). North Cheam Exchange to the north west affords a similar range of services, and can provide a level of diversity and resilience across BT business services should it be required.

TELECOMS CARRIERS

Telecommunications carriers with owned infrastructure located adjacent to the building are listed below for information. In addition to these, there are a number of alternative carriers that can provide service, albeit over a third party network such as BT. It must be noted that the presence of infrastructure within the search area does not constitute availability of service.

British Telecom Tel: 0800 800 152 www.bt.com
Virgin Media Tel: 0800 953 0180 www.virginmedia.com

SUMMARY

The BT copper and fibre services available at Sutton Cheam Exchange, and added resilience of a second exchange afford Chancery House an excellent level of services to meet today's business needs with the added advantage of potentially good diversity and resilience opportunities. The physical presence of alternative carriers infrastructure to BT from Virgin Media in the building and in the local environs affords an excellent choice of alternative carrier to provide fibre services to any incoming tenant at this time.

RATING			
BT	4	BT	1 Low (Copper only)
OTHERS	4	BT	2 Fair (Copper internal / fibre in environs)
		BT	3 Good (Copper internally / fibre externally)
		BT	4 Excellent (Copper/fibre internally) with diversity
		OTHERS	1 None (No alternative carriers adjacent to site)
		OTHERS	2 Fair (Carrier services in local environs)
		OTHERS	3 Good (Carrier services adjacent to building/site)
		OTHERS	4 Excellent (Carrier services in building/site)

GLOSSARY OF TERMS

ADSL (Asymmetric Digital Subscriber Line) Asymmetric line speed, the speed from the internet to the user, and the user to the internet are different. Feed over copper cable, governed by distance from exchange to user. (co-exists with voice services)

ADSL+ (Asymmetric Digital Subscriber Line+) Asymmetric line speed as above, but with faster connections both downstream and upstream over similar distance following roll-out of BT's 21CN Wholesale Broadband Connect (WBC).

SDSL (Symmetric Digital Subscriber Line) Symmetric line speed, the speed between the user and the internet are the same in both directions but cannot co-exist with voice services over the same line.

FTTC (Fibre to the Cabinet) Provides fibre to the cabinet, shortening copper cable length requirements to enhance speed

FTTP (Fibre to the Premises) Provides fibre direct to the premises at a lower cost than that of standard lease line products

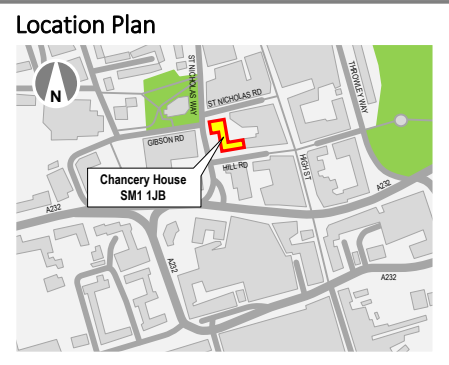
LLU (Local Loop Unbundling) Is the process by which third party network operators are able to install equipment into BT exchanges in order to deliver their own services without having to utilise BT's network.

BT Infinity (British Telecom) Fibre to the cabinet/premises delivered services from enabled exchanges providing broadband speeds of up to 80Mbps download (subject to conditions) at a lower cost to that of traditional leased fibre services.

STRUCTURE

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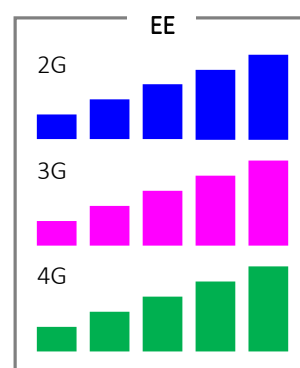
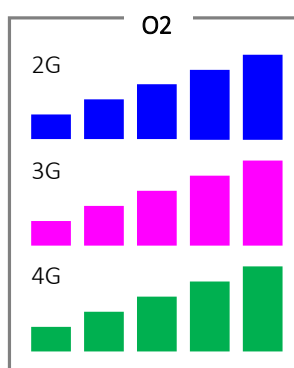
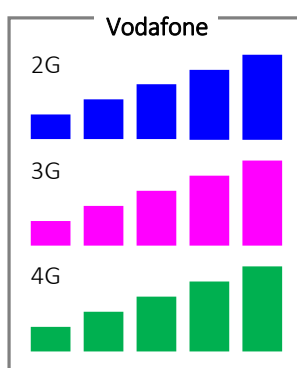
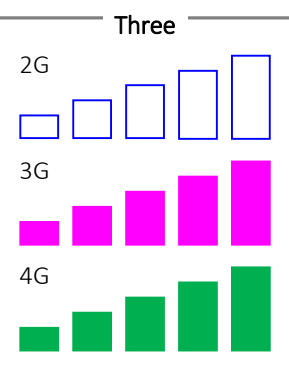
Building Observations

- Building sits in a commercial property environment
- Adjacent buildings of varying height in all directions
- Building fabric consists of stone and glazed facades
- No noted mobile equipment located on roof top
- No noted in-building coverage solutions in place

Building Environment



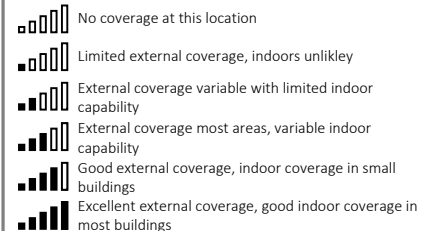
STREET LEVEL COVERAGE



OBSERVATIONS

Following our review of the mobile operators coverage details it is clear that Chancery House affords an excellent level of macro coverage from all operators for 2G, 3G and 4G services. Any high concentration of users within the building may impact on the capacity available especially if this is confined to any one single network operator. Based on this information it is considered to be a location that affords an excellent level of overall coverage across all operators at street level for 2G, 3G and 4G services.

COVERAGE KEY - Street Level



PREDICTIONS

Surrounding buildings, the distance and direction of the serving cells and building construction can all impact on the penetration of signal throughout a building. Based on the location and serving cells, it is envisaged that a good/variable level of coverage will be present throughout the building for 2G, 3G and 4G services with some potential degradation across the basement areas and in the lifts across all operators and technologies. In cases of coverage issues, each of the operators can provide solutions to enhance their service of which we can provide details and assist in their procurement and installation should they be required. This extends to full in-building coverage, or specific areas or floors by means of Femto Cell technology.

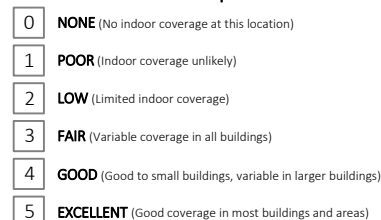
Further to the coverage levels, the availability of service is dependant on capacity. This is the volume of data and simultaneous voice calls the macro cell can accommodate at any one time. Capacity issues result in 'network busy' messages or dropped calls. The level of capacity can be addressed by the operators should the building be populated with a high number of users on a single network which will impact on both them and others using the same cell.

INDOOR SUMMARY

OPERATOR	2G	3G	4G
Three	0	4	4
Vodafone	4	4	4
O2	4	4	4
EE	4	4	4

EE operates under both T-Mobile and Orange brands within the United Kingdom / Three operates a 3G/4G network only

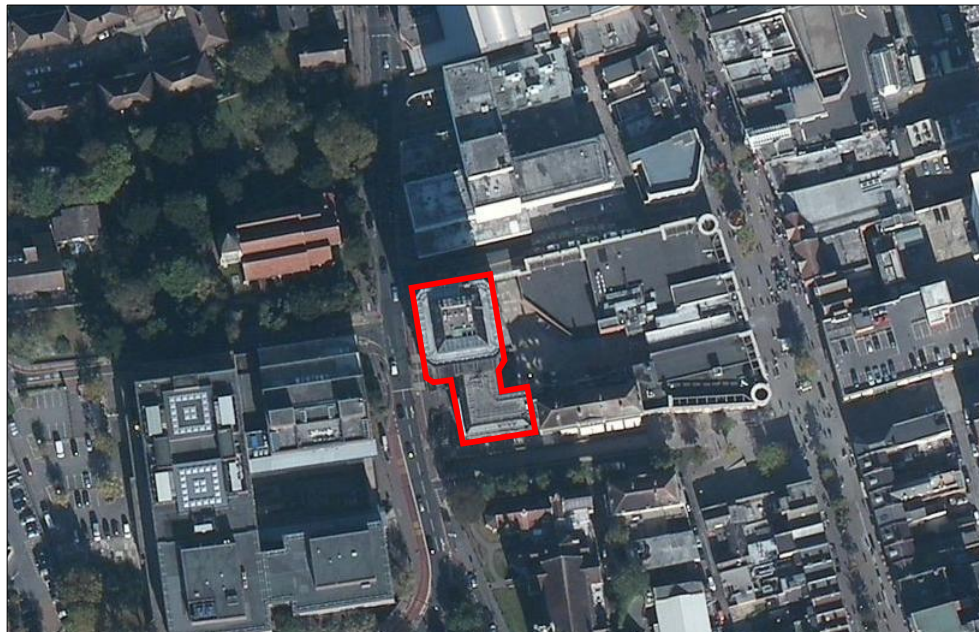
COVERAGE KEY - Indoor prediction



It should be noted that the location, building fabric / materials, surrounding environs impact on the ability of RF penetration and these predictions are for guidance only.

Fixed Telecoms Appraisal Summary

In addition to the Fixed Network carrier study completed, a review by survey of the building was undertaken on the 3rd April 2018. The purpose of this survey was to clearly identify the presence of all fixed telecommunications carrier's infrastructure in the building, adjacent to or within the local environs.



SITE AERIAL VIEW (Building highlighted in red)



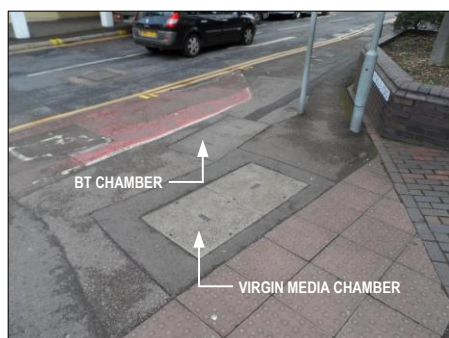
VIEW LOOKING SOUTH ALONG ST NICHOLAS WAY



VIEW LOOKING NORTH ALONG ST NICHOLAS WAY

Local Carriers

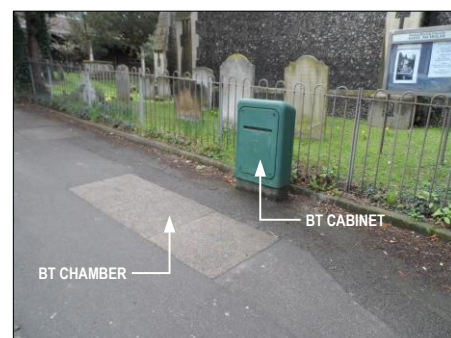
Chancery House has telecommunications access from St Nicholas Way and St Nicholas Road into the north west corner of the building. The survey located a good number of telecommunications chambers owned and operated by BT and Virgin Media outside and local to the building (See **Photographs 1 to 6**). The presence from BT is extensive in this area with noted cabinets, chambers and infrastructure running along St Nicholas Way on both sides of the carriageway extending into St Nicholas Road and Hill Road to the north and south of the building. Based on our inspection it is clear that BT enter the building from the north from St Nicholas Road at this time. The level of infrastructure from Virgin Media is also extensive in this area with noted infrastructure following a similar path to that of BT. Based on our inspection it is evident that Virgin Media enter the building from a chamber located in the footway adjacent to the junction of St Nicholas Way with St Nicholas Road on the west elevation. No other carriers infrastructure was located within the immediate environs deemed to be suitable for extension to provide services based on our initial inspection.



PHOTOGRAPH 1
EXISTING BT AND VIRGIN MEDIA CHAMBERS AT JUNCTION
OF ST NICHOLAS WAY WITH ST NICHOLAS ROAD



PHOTOGRAPH 2
EXISTING BT SERVING CHAMBER IN FOOTWAY ON
ST NICHOLAS ROAD TO NORTH ELEVATION OF BUILDING



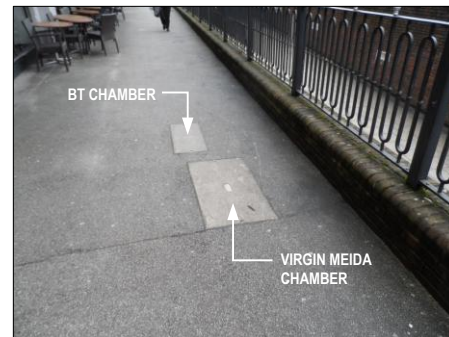
PHOTOGRAPH 3
EXISTING BT CHAMBER AND CABINET ON ST NICHOLAS WAY
(WEST SIDE) TO WEST OF BUILDING



PHOTOGRAPH 4
EXISTING SERVING VIRGIN MEDIA CHAMBER IN FOOTWAY ON
ST NICHOLAS WAY TO WEST ELEVATION OF BUILDING



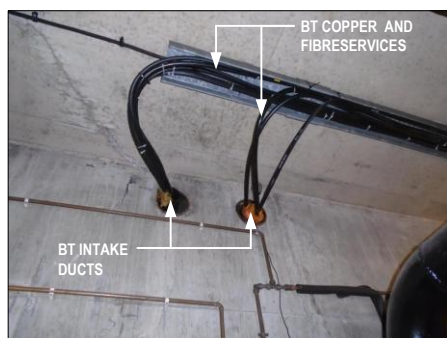
PHOTOGRAPH 5
EXISTING BT AND VIRGIN MEDIA CHAMBERS IN FOOTWAY
ON ST NICHOLAS WAY TO NORTH OF BUILDING



PHOTOGRAPH 6
EXISTING BT AND VIRGIN MEDIA CHAMBERS IN FOOTWAY ON
HILL ROAD TO SOUTH ELEVATION OF BUILDING

Building Presence

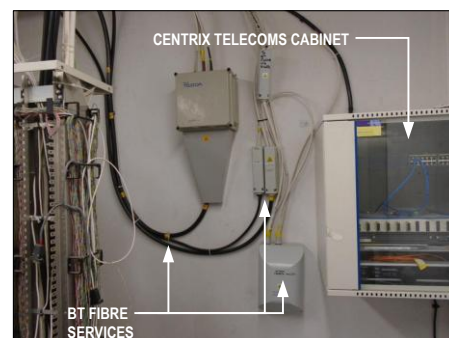
There are currently two points of telecommunications intake both into the basement at the north west corner of the building. The BT intake consists of 2No. 90mm diameter (approx) ducts through the wall from St Nicholas Road into the plant room at high level. These ducts provide access for BT's copper and fibre services which are terminated in the BT frame room adjacent to the main plant room (See **Photographs 7, 8 & 9**). All incoming cables run at high level on existing containment into the frame room, with outgoing services to the main building riser on the west side of the central core of the building. The copper services are delivered over multiple incoming cables terminated on an existing historic frame (DP1908) with a number secondary DP's on the frame providing services. Based on the DP's and incoming cable sizes we consider approximately 500 copper pairs are present, but this will be subject to confirmation from BT. A number of outgoing cables are present from the DP's with further DP's in the building risers across floors. The fibre services are delivered via 3No. incoming cables (multiple fibres/tubes) terminated in a splice enclosure and two gas seals with a number of outgoing blown fibre tubes to the tenants floors via further gas seals. Based on the incoming cable sizes we conclude that a total of 18No. blown fibre tubes with a capacity of 4/12No. fibres per tube (72/216No. fibres total) are present at this time, albeit subject to confirmation from BT. All outgoing services exit the frame room at high level on containment to the main building riser (See **Photographs 10 & 11**). The services from Virgin Media enter the building from the west elevation into the gas meter room via a 90mm diameter (approx) duct (See **Photographs 12 & 13**). The level of incoming services extend to historic copper cables plus current fibre cables. It is considered that the copper services at the point of entry and in the BT frame room (See **Photograph 14**) are now redundant but would be subject to confirmation from the carrier. The fibre services are delivered over multiple cables, with a noted building flexibility point in the plant room beneath the riser, plus a further splice joint in the riser on the ground floor. All outgoing services follow a similar route to that of BT into the main riser. Further copper services located in the gas meter room (See **Photograph 15**) are now deemed to be redundant following tenant vacation. In addition to the above, it was noted that an incoming fibre service was present including a small rack in the BT frame room from Centrix Telecom. Further evidence was found in the risers on the upper floors. Centrix have since been taken over by Adept, and the level of services being provided are unknown at this time without further detailed investigation.



PHOTOGRAPH 7
EXISTING BT DUCT ENTRIES FROM ST NICHOLAS ROAD
PROVIDING ACCESS FOR COPPER AND FIBRE SERVICES



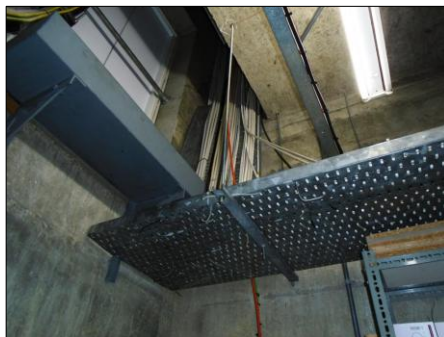
PHOTOGRAPH 8
EXISTING BT COPPER DISTRIBUTION POINT
IN BT FRAME ROOM IN BASEMENT



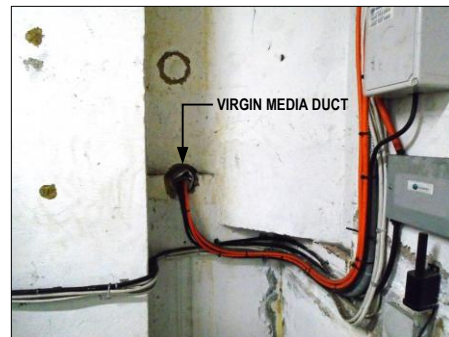
PHOTOGRAPH 9
BT FIBRE GAS SEALS AND SPLICE ENCLOSURE IN FRAME
ROOM PLUS EXISTING CENTRIX TELECOMS CABINET



PHOTOGRAPH 10
TYPICAL VIEW FROM BASEMENT LEVEL OF CABLE TRAY
FROM FRAME ROOM TO MAIN RISER



PHOTOGRAPH 11
TYPICAL VIEW FROM BASEMENT ROOM OF HORIZONTAL
CONTAINMENT TO MAIN RISER



PHOTOGRAPH 12
EXISTING VIRGIN MEDIA INTAKE DUCT IN WALL FROM ST
NICHOLAS WAY INTO GAS METER ROOM



PHOTOGRAPH 13
EXISTING VIRGIN MEDIA SERVICES ADJACENT TO DUCT
IN GAS METER ROOM



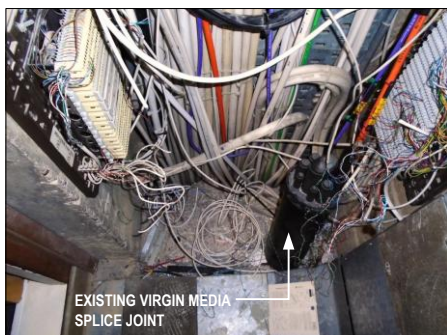
PHOTOGRAPH 14
VIRGIN MEDIA COPPER SERVICES IN BT FRAME ROOM
DEEMED TO BE REDUNDANT



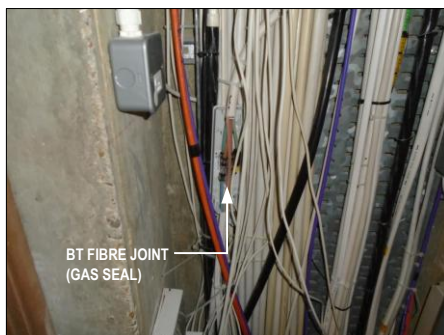
PHOTOGRAPH 15
EXISTING HISTORIC COPPER SERVICES FOR TENANT
DEEMED TO BE REDUNDANT IN GAS METER ROOM

Risers and Cable Routes

Access from the telecoms intake points in the basement are afforded by the vertical riser to all floors located on the west elevation of the main building core (See **Photographs 16, 17 & 18**). Based on our inspection of the building and riser we conclude that access to all upper floors is excellent in respect of riser location, with excellent access into the tenant areas to suit via the raised access floor voids and suspended ceilings. Access from this riser on the ground floor is limited to the suspended ceiling as no raised access floors are provided at this time. It was noted that a level of congestion is present at ground floor level due to the number of cables, including a Virgin Media splice joint and some potentially redundant BT services. However, this level of congestion is reduced with elevation and is not considered to impact on the delivery of any additional required services at this time.



PHOTOGRAPH 16
EXISTING RISER ON GROUND FLOOR INDICATING LEVEL OF
SERVICES AND AVAILABLE SPACE



PHOTOGRAPH 17
EXISTING RISER ON GROUND FLOOR INDICATING SERVICES
AND AVAILABLE SPACE



PHOTOGRAPH 18
VIEW OF RISER ON 5th FLOOR INDICATING LEVEL OF
SERVICES AND AVAILABLE SPACE

Legacy Fixed Cabling Assessment

As part of the survey, we reviewed the level of historic cabling that has been left in place following tenant vacation or legacy services from any of the telecommunications carriers. The level of services provided by BT across all floors is extensive both in respect of copper and fibre cabling, terminations and equipment etc. A number of small copper distribution points were identified on the ground and fifth floors with varying levels of outgoing cables etc. It is evident that some of this cabling may now be redundant. However, the level of this is minimal and we do not consider warrants any further action at this time. The level of historic services within gas meter room and BT frame room is currently limited to that of two cabinets and associated copper services. The location of these cabinets and services is not considered to one that is causing any issues with regard to space, but may be worth considering being removed in the future if required.

Service Availability

The standard services afforded by BT over its existing copper networks can offer ADSL broadband speeds of around 10-19Mbps. Sutton Cheam Exchange has been enabled to provide BT Infinity services over FTTC technology with speeds of up to 80Mbps download and 20Mbps upload. However, this building is noted as 'Exchange Only' and is not therefore connected to the local street cabinet and BT are currently 'exploring options' in respect of FTTC technology delivery but provides no timescales for deployment at this time (Data via the BT website). The level of copper services available from BT and other companies that can utilise the BT network will be able to provide enhanced speeds by use of bonded ADSL products where required to increase speed. Typically two 19Mbps ADSL lines bonded can increase speed to 38Mbps, increasing with the number of lines bonded accordingly. In addition to the copper services, it is clear that an excellent level of fibre based business tariff services will be available from BT to provide any level of speed and bandwidth required over fibre products. For example, the introduction of a 100Mbps fibre bearer can be delivered over the existing ducted network affording un-contended upload and download port speeds from 10Mbps to 100Mbps based on the tenants requirements. These are also scalable from initial requirements up to the maximum available speeds in respect of the bearers. Higher bearer capacities are available to suit typically 500Mbps to 1Gbps and beyond where required. Furthermore, there are a host of companies that can provide enhanced products over the existing infrastructure potentially providing smaller businesses a more affordable level of service if so required. The presence of Virgin Media in the building affords an excellent level of alternative service should it be required, delivering a similar range of fibre products to that of BT.

Summary

Based on the level of infrastructure and the availability of services from BT's local exchange, we consider Chancery House has an excellent level of connectivity with the ability to enhance this by means of fibre services where required in minimal timescales from order in respect of BT and Virgin Media. The delivery of managed services from Adept as detailed in this report will greatly enhance the connectivity of the building, but is subject to further investigation to fully understand the level of services they can provide.